

REMARKS

Applicant respectfully requests reconsideration of this application in view of the foregoing amendment and following remarks.

Objection

The office action objects the title of the invention by indicating “not descriptive”.

The title has been amended to read -- AN IMAGE SENSING ELEMENT FOR SENSING AN IMAGE FORMED BY AN IMAGE SENSING LENS --.

Applicant respectfully requests that this objection be withdrawn.

Status of the Claims

Claims 1-30 are pending in this application. Claims 1 and 18 are independent. All of the pending claims have been rejected either under 35 U.S.C. §102(e) or 35 U.S.C. §103(a).

Rejection under 35 U.S.C. §102

Claims 1-3, 5, 8, 11-14, 18, 23-25 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,195,509 to Nakahara (“Nakahara”).

The office action indicates that Nakahara discloses “a pixel (1-1L) which includes a first light-receiving region (6L) that includes a region where a principal ray having passed through the image sensing lens is incident, and a second light-receiving region (1D, 2D) that does not include the region where the principal ray having passed through the image sensing lens is incident (since the region is not in the center of the optical axis).”

Nakahara discloses an exposure control of a camera which includes a focus detection device which receives object light within a predetermined distance measuring area to measure the

object distance, a photometering device which receives object light within a plurality of photometering areas to measure the object brightness, and a backlight detection device which obtains a main photometering value based on the object light received by the focus detection device and for detecting the presence of backlight based on the main photometering value and a reference photometering value measured by the photometering device.

As Applicant understands it, however, the 1-1L of Nakahara in Figs. 2A, 2B is not a pixel as in the present aspect of the present invention but one of the peripheral photometering areas 1-1L through 1-4L. Secondly, 1D, 2D and 3D are the distance measuring areas and each of the areas independently measures the distance. See, for example, col. 5, lines 34-41 of Nakahara.

In contrast, each of the first and second light receiving regions of the present aspect of the present invention is in a same pixel and designed in such a way that the pixel design reduces the degree of decrease in sensor output in a stopped-down aperture state compared with the sensor output in a full aperture state of the image sensing lens.

Independent claims 1 and 18 have been amended for further clarification. In particular, each of amended claims 1 and 18 read “a pixel which includes a first light-receiving region that includes a region where a principal ray having passed through the image sensing lens is incident, and a second light-receiving region that does not include the region where the principal ray having passed through the image sensing lens is incident when a stop of the image sensing lens is in a stopped-down aperture state thereby reducing the degree of decrease in sensor output compared with the sensor output in a full aperture state of the image sensing lens.” Support for the amendment may be found, for example, page 17, line 25 - page 18, line 13 of the original specification.

Applicant believes that each of claims 1 and 18 is neither anticipated by nor rendered obvious in view of Nakahara for at least the reasons discussed above.

Reconsideration and withdrawal of the rejections of claims 1-3, 5, 8, 11-14, 18, 23-25 under 35 U.S.C. §102(e) is respectfully requested.

Rejection under 35 U.S.C. §103

Claims 7, 9, 10, 13, 17, 22, 26 and 27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Nakahara.

As discussed above, Nakahara fails to show or suggest the pixel designed as in claims 1 and 18 as amended. Accordingly, each of claims 7, 9, 10, 13, 17, 22, 26 and 27, in depending from either claim 1 or claim 18, is neither anticipated by nor rendered obvious in view of Nakahara for at least the similar reasons as discussed above regarding claims 1 and 18.

Claims 4, 6, 15, 16 and 19-21 have been rejected under 35 U.S.C. §103(a) as being obvious over Nakahara in view of U.S. Patent No. 5,751,354 to Suzuki et al. ("Suzuki").

Suzuki is cited as disclosing the second light-receiving region used to detect a focus state and photograph an object.

As Applicant understands it, however, Suzuki fails to show or suggest the pixel designed as in claims 1 and 18 as amended. Accordingly, each of claims 4, 6, 15, 16 and 19-21, in depending from either claim 1 or claim 18, is neither anticipated by nor rendered obvious over Nakahara and Suzuki, taken either alone or in combination, for at least the similar reasons as discussed above regarding claims 1 and 18.

Reconsideration and withdrawal of the rejections of claims 7, 9, 10, 13, 17, 22, 26 and 27 under 35 U.S.C. §103(a) is respectfully requested.

Applicant has not individually addressed the rejections of the dependent claims because Applicant believes that the foregoing places the independent claims (i.e., claims 1 and 18) from which they respectively depend in condition for allowance. Applicant however reserves the right to address such rejections of the dependent claims should such be necessary.

Claims 31-36 have been added to recite the claimed invention in an alternative manner. Specifically, added claims recite that each pixel comprises an optical unit including a lens portion such as a micro-lens, in addition to the first and second light-receiving regions. Supports for the added claims may be found, for example, at page 17, lines 4-16 of the original specification. Applicant notes that Nakahara discloses plural sensors corresponding to photometric areas and distance measuring areas. However, these sensors are not arranged in one pixel including a micro-lens.

Accordingly, Applicant believes that the added claims are in condition for allowance and such action is respectfully requested.

AUTHORIZATION

No petitions or additional fees are believed due for this amendment and/or any accompanying submissions. However, to the extent that any additional fees and/or petition is required, including a petition for extension of time, Applicant hereby petitions the Commissioner to grant such petition, and hereby authorizes the Commissioner to charge any additional fees, including any fees which may be required for such petition, or credit any overpayment to Deposit Account No. 13-4500 (Order No. 1232-4825). **A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.**

An early and favorable examination on the merits is respectfully requested.

Respectfully submitted,
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